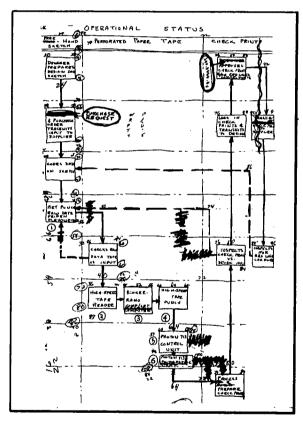
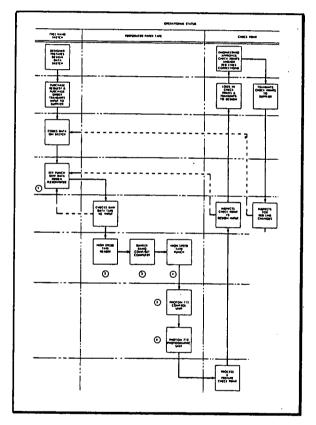
# NASA TECH BRIEF



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# **Automated Drafting System Uses Computer Techniques**





## The problem:

In implementing hardware production involving numerous complex items, large numbers of schematic and block diagrams must be produced from the design engineers' freehand sketches. Depending on complexity, a draftsman spends an average of 12 to 15 hours in producing a finished diagram. A system is needed that will eliminate this excessive time that produces no essentially "new" information.

## The solution:

An automated drafting system that codes conventional drafting symbols and their coordinate locations on standard size drawings for entry on tapes that are used to drive a high speed photocomposition machine.

#### How it's done:

The designer's freehand sketch is marked with an alphameric code that translates the symbols, connect-

(continued overleaf)

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ing lines, and coordinate locations into machine language. The coded data is converted into a raw data tape and typewritten text that can be checked for errors against the coded sketch. The raw data tape is fed to a computer that is programed to translate, arrange, and expand the raw data for transfer to a high speed output tape-perforating punch. The high speed punch converts computer impulses into holes in a paper tape that is fed into the control unit of a high speed photocomposition unit that responds to the pulsed instructions by photographically reproducing the diagram line by line and symbol by symbol in their prescribed coordinate locations.

#### Notes:

1. With this system, complex diagrams require only 3 to 4 hours including approximately 3 hours for translating the sketch information into machine language.

- 2. In one program, approximately 6,600 "D" size drawings will be automatically produced by this system at an estimated savings in excess of \$140,000.00.
- 3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer Marshall Space Flight Center Huntsville, Alabama 35812 Reference: B66-10362

#### Patent status:

No patent action is contemplated by NASA.

Source: Donald H. Millenson of North American Aviation, Inc. under contract to Marshall Space Flight Center (M-FS-788)